CLAIMS

        1.   A method of generating a database of connection endpoints between a sub-network of network elements, where the network elements are connected through a high speed network, comprising the steps of:

5   transmitting source endpoint identifiers on outgoing channels of some or all of the network elements;

        on a particular network element, receiving source endpoint identifiers from other network elements on incoming channels and associating the source endpoint identifiers with destination endpoint identifiers; and

10   generating a database responsive to receiving the associated source and destination endpoint identifiers.

        2.   The method of claim 1 wherein the generating step comprises the step of transmitting associated source and destination endpoint identifiers to a central control processor.

15   3.   The method of claim 2 wherein each network element maintains a table associating received source endpoint identifiers to corresponding destination endpoint identifiers.

        4.   The method of claim 1 and further comprising the step of assigning a numeric identifier to each network element.

20   5.   The method of claim 4 wherein the transmitting step comprises the step of transmitting source endpoint identifiers including the numeric identifier of the network element transmitting the source endpoint identifier.

        6.   The method of claim 1 wherein said transmitting step comprises the step of transmitting source endpoint identifiers on path overhead fields of

25   outgoing channels of some or all of the network elements.

7.   A communication system, comprising:

a high speed network;

a sub-network of network elements connected through the high speed network, said network elements including circuitry for:

5   transmitting source endpoint identifiers on outgoing channels;

receiving source endpoint identifiers from other network elements on incoming channels; and

associating the source endpoint identifiers with destination endpoint identifiers; and

10   a central control processor for maintaining a database responsive to receiving the associated source and destination endpoint identifiers.

8.   The communication system of claim 7 wherein the network elements transmit associated source and destination endpoint identifiers to the central control processor.

15   9.   The communication system of claim 8 wherein each network element maintains a table associating received source endpoint identifiers to corresponding destination endpoint identifiers.

10.   The communication system of claim 7 wherein the central control processor assigns a numeric identifier to each network element.

20   11.   The communication system of claim 10 wherein the network elements transmit source endpoint identifiers including the numeric identifier of the network element transmitting the source endpoint identifier.

12.   The communication system of claim 7 wherein the network elements transmit source endpoint identifiers on path overhead fields of

25   outgoing channels of some or all of the network elements.

13.   A network element for connecting with other network elements through a server network, comprising:

circuitry for transmitting source endpoint identifiers on outgoing channels;

5   circuitry for receiving source endpoint identifiers from other network elements on incoming channels; and

circuitry for associating the source endpoint identifiers with destination endpoint identifiers.

14.   The network element of claim 13 wherein said transmitting

10   circuitry comprises circuitry for transmitting associated source and destination endpoint identifiers to the central control processor.

15.   The network element of claim 14 wherein said associating circuitry comprises circuitry for maintaining a table associating received source endpoint identifiers to corresponding destination endpoint identifiers.

15   16.   The network element of claim 13 wherein the transmitting circuitry comprises circuitry for transmitting a numeric identifier associated with the network element.

17.   The network element of claim 13 wherein the transmitting circuitry comprises circuitry for transmitting source endpoint identifiers on path overhead

20   fields of outgoing channels.